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ABSTRACT

The use of Web-administered surveys by colleges and universities is becoming more prevalent as the Web mode can be more cost efficient and less intrusive on class time than the traditional paper-pencil mode. The purpose of this study was to compare several potential survey issues by mode to see if the Web mode was as viable an approach as the more traditional paper-pencil. Of particular concern were coverage error, nonresponse error, response set, and the psychometric qualities of the data collected. Data from three postsecondary institutions that had administered the American College Testing program's "Student Opinion Survey" first on campus using the paper-pencil mode and then via Web were used. The total number of respondents from all 3 institutions was 1,874 in 1997 (paper-pencil) and 1,251 in 2001 (Web). Findings from the study indicated that the two modes were comparable, with the Web mode perhaps allowing for more representative sampling. (Contains 9 tables and 12 references.) (Author/SLD)

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Is Newer Better:
A Comparison of Web and Paper-Pencil Survey Administration Modes

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Abstract

The use of web-administered surveys by colleges and universities is becoming more prevalent as the web mode can be more cost efficient and is less intrusive on class time than the traditional paper-pencil mode. The purpose of this study was to compare several potential survey issues by mode to see if the web mode was as viable an approach as the more traditional paper-pencil. Of particular concern were coverage error, non-response error, response set, and the psychometric qualities of the data collected. Data from three postsecondary institutions that had administered ACT's *Student Opinion Survey* first on-campus using the paper-pencil mode and then via web were used. Findings from the study indicated that the two modes were comparable, with the web mode, perhaps, allowing for more representative sampling.

Is Newer Better: A Comparison of Web and Paper-Pencil Survey Modes

Colleges and universities routinely survey students to document their experiences with, expectations of, and satisfaction with their programs, services, and campus environment. Findings from these surveys are used for policy, planning, and delivery purposes. Traditionally, these surveys have been administered on-campus in class or through on-campus mail using a paper-pencil mode. Given the cost efficiencies of web-administered surveys (i.e., reduced labor and materials costs) and the reduction in friction between researchers and the classroom professors who resent (if not resist) giving up in-class time, it is not surprising that colleges and universities are more frequently turning to the web-administration mode. There are, however, issues that need to be researched before the use of web-administered surveys can be embraced as an acceptable alternative to the on-campus, paper-pencil survey.

A major concern in web surveys of the general population or even many subsets of the general population is population coverage, which affects the validity of the survey data as coverage error contributes to a larger sampling error. Coverage error "...is a function of both the proportion of the target population that is not covered by the frame and the difference on the survey statistic between those covered and those not covered" (Couper, 2000). For the general population, and many of its subsets, coverage error can be a major problem in web surveys as not all people have access to a computer, access to the web, adequate computer capabilities, and/or computer skills necessary for responding. This issue, however, is a far less serious problem in web surveys of college students as most, if not all, have an email address and web access (Dillman, 2000). In addition, as compared to the general population, college students, as a whole, are probably more comfortable and confident in their use of computers. Jones (2002) reported that findings from a national survey indicated 72% of college students checked their email at least once a day and 85% owned their own computer.

A second important issue in survey research concerns non-response error, which Dillman (2000) defined as, "The result of people who respond to a survey being different from sampled individuals who did not respond, in a way relevant to the study" (p. 11). While the factors that cause non-response are not always controllable, preventing unnecessary non-response and securing the highest possible response rate are certainly key to the success of any survey project. While some studies of general populations have garnered higher response rates to paper-pencil surveys than to web surveys (Shannon & Bradshaw, 2002; Layne, DeCristoforo, & McGinty, 1999; Ramirez, Sharp, & Foster, date unknown;), other studies of college students have reported higher response rates to web surveys (Tomsic, M.L., Hendel, D.D., & Matros, R.P., 2000) and computer administration over local area network surveys (Antons, Dilla, & Fultz, 1997). Given the discrepancies in the findings, "...nonresponse remains a key concern" (Couper, 2000, p. 486).

A third issue, response set, which contributes to measurement error, may also be linked with administration mode (Dillman, 2000). Response set is the situation in which a respondent may "...fall into the pattern of answering every question..." with the same or similar answers when responding to a series of questions using the same scale of numbered responses (Sudman & Bradburn, 1983, p. 223). Response set increases the noise level on the measurement by confounding the effect of the object of measurement with systematic error. No studies

examining response set with regard to web surveys could be found, but surely the potential for response set in web surveys is as great a problem as in paper-pencil surveys.

Finally, person fit statistics have been used by researchers to evaluate psychometric qualities of the data (Green, 1996). Fit statistics are routinely generated within the Item Response Theory (IRT) framework. Person fit statistics quantify the likelihood of a person's responses to a set of items given the overall latent variable. By identifying and removing the misfit persons, the reliability of data could increase (Green, 1996). It could be argued that when applied to the comparison of two survey administration modes, e.g. paper-pencil and web, the method with fewer misfit persons is more desirable.

For this study, we chose to examine these issues using data from three institutions that had administered a standardized instrument via paper-pencil and then via the web. Information was gathered from each of the three institutions concerning sample selection for the on-campus paper-pencil administration and for the web administration; the more inclusive, that is, the greater the coverage, of each mode, the less likely the chance of coverage error. Comparison of selected demographic characteristics of the paper-pencil respondents and web respondents with those of the student population allowed us to address the non-response issue. Examination of response patterns allowed us to examine potential mode effects on student responses. Finally, we examined the data using IRT to see if the two survey modes had similar psychometric characteristics.

Methods

Data

Data for the present study came from ACT's *Student Opinion Survey* (SOS), attached. The paper-pencil version of the SOS (SOS_{PP}) has been used by hundreds of universities and colleges to collect information for institutional research purposes since 1979. The web version of the SOS (SOS_W) was developed and first implemented in 2001 in a statewide, re-occurring study of students' opinions of public post-secondary institutions by a southern state. Of 18 4-year institutions that participated in the 1997 and the 2001 study, three administered in class and via campus mail the SOS_{PP} in 1997 and the SOS_W in 2001; these three institutions were included in this study. The total number of respondents from all three institutions was 1,874 in 1997 and 1,251 in 2001.

Samples

The three schools in the study varied in terms of enrollment size and institution type. School 1 was a public 4-year college with an undergraduate enrollment of approximately 11,000. School 2 was a public 4-year college with an undergraduate enrollment of approximately 2,300. Both schools emphasized programs in engineering and technology. School 3 was a public, upper-division health science college with an enrollment of approximately 1,900. Analyses were conducted and findings presented separately for each of the three institutions as they were enough different to warrant individual attention.

In 1997, the three institutions used different methods to sample students and administer the SOS_{PP}. School 1 used a non-random sampling method, i.e., selected classes where the

instructional faculty agreed to the use of class time and administered the survey via a combination of in-class and campus mail. School 2 randomly selected a sample of classes and administered the survey in-class. School 3 sent the survey to its entire student population via campus mail. Based on these differences, we will name School 1 NRC (non-random, combination of in-class and campus-mail), School 2 RIC (random, in-class), and School 3 EPCM (entire population, campus mail).

In 2001, all three colleges used random sampling methods to administer the SOS_W. First, the colleges randomly selected a pre-defined number of students from the list of students who had valid email addresses. Then, ACT sent a notification letter of the SOS_W to these students via email. In the letter, students were asked to take the SOS_W by going to the SOS_W page of the ACT web site via a hyperlink embedded in the email. Responses to the survey were then sent to ACT and stored in its database.

Analysis

Comparisons were made in terms of respondents' demographic characteristics, response patterns, and the data's psychometric characteristics between SOS_{PP} and SOS_W.

Demographic characteristics of the respondents. To address the issues of coverage error and non-response error, we examined whether the two samples were equally representative of their student population. Specifically, we looked to see if the proportions of respondents from different demographic groups were equal between the SOS_{PP} and SOS_W, by conducting a two-sample hypothesis test was conducted on the variables of sex, race/ethnicity, enrollment status, and age. For this purpose, we tested the following hypotheses.

1. There is no difference in the proportion of male participants between SOS_{PP} and SOS_W.
2. There is no difference in the proportion of African American participants between SOS_{PP} and SOS_W.
3. There is no difference in the proportion of Hispanic American participants between SOS_{PP} and SOS_W.
4. There is no difference in the proportion of Caucasian participants between SOS_{PP} and SOS_W.
5. There is no difference in the proportion of full-time participants between SOS_{PP} and SOS_W.
6. There is no difference in the proportion of age groups between SOS_{PP} and SOS_W.

It is reasonable to assume that, over the years, the proportion of these demographic groups on campus have changed. To incorporate these changes, equation 1 was used to test the hypotheses:

$$z = \frac{(p_{1i} - P_{1i}) - (p_{2i} - P_{2i})}{s_{(p_{1i} - P_{1i}) (p_{2i} - P_{2i})}} \qquad (1)$$

where

p_{1i} is the proportion of the group *i* in the SOSw sample,
P_{1i} is the proportion of the group *i* in the campus population when SOSw was conducted,
p_{2i} is the proportion of the group *i* in the SOS_{PP} sample,

P_{2i} is the proportion of the group i in the campus population when SOS_{PP} was conducted,

and

$$s_{(p_{1i}-P_{1i})-(p_{2i}-P_{2i})} = \sqrt{\{\frac{p_{1i}(1-p_{1i})}{n_1-1} + \frac{p_{2i}(1-p_{2i})}{n_2-1}\} + \{\frac{P_{1i}(1-P_{1i})}{N_1} + \frac{P_{2i}(1-P_{2i})}{N_2}\}} \quad (2)$$

where

n_1 is the total number of the respondents in the SOSw sample,
n_2 is the total number of the respondents in the SOS_{PP} sample,
N_1 is the total number of students selected for the SOS_W survey, and
N_2 is the total number of students selected for the SOS_{PP} survey.

Failure to reject the hypotheses will suggest that there is no statistically significant difference in demographic characteristics of the respondents between SOS_{PP} and SOS_W.

Response patterns and response set. To determine whether the two samples exhibited similar amount of response set, we examined the average percentages of extreme responses ("Very Dissatisfied" and "Very Satisfied") and "Neutral" responses given by students in each sample. Specifically, for each student, the percent of items that were rated as "1," "3," or "5" were computed. These percentages were then averaged over the entire sample. To determine whether one survey mode was more or less prone to response set, we also examined the average percentages of students who gave the same response to all of the items he or she responded to in each sample. To determine whether there was a difference in these averages between the two survey modes, an independent t-test was performed on each of the averages.

Psychometric characteristics of the data. The IRT Rasch Model was the framework for assessing the psychometric characteristics of the data. The reliability coefficients for the two data sets were computed using the BIGSTEP (Wright & Linacre, 1991) program. The program also produces a person-fit statistic to assess how well the measurement model fits the data. Using Green's (1996) person misfit criterion, which is a standardized mean squared residual of 2 or more away from the expected value, responses were classified into misfit or non-misfit groups. A hypothesis test was also conducted to determine whether the difference in proportions of misfit persons was statistically significant between the SOS_{PP} and SOS_W.

Results

Demographic Characteristics of the Respondents

Table 1 summarizes the sample sizes and response rates of the two administrations for each of the three colleges. The response rates were much higher for in-class and in-class/campus mail combination than for the web, but the differences diminished between campus mail and web.

Tables 2-5 present the demographic characteristics of the respondents to the two surveys for each of the three institutions. From Table 2 it can been seen that there was a significant increase

(13.1%) in percent of female respondents in the SOS_W in School EPCM. Table 3 shows that at School NRC, participation in the SOS_W decreased by 10.7% for the 21-or-under age group and increased by 9.3% for the 22-29 age group. For School RIC, however, participation for the SOS_W increased by 9.2% for the 30-and-over age group. Table 4 indicates that there was no significant difference among the racial/ethnic groups in all three schools. Finally, there were interesting differences in survey participation between the enrollment groups (i.e., full-time and part-time). In all three schools, there was a significant decrease in the percent of full-time students for the SOS_W and a significant increase in the number of part-time students responding to the SOS_W. School RIC had the greatest increase, 18.2%, in part-time students' participation.

Response Patterns and Response Set

Table 6 presents the results for comparisons of the amount of extreme (lowest or highest rating) and neutral (middle rating) responses on the SOS_{PP} and SOS_W. The results suggest similar response patterns for SOS_{PP} and SOS_W. The average percent of items receiving extreme low ratings increased slightly on the SOS_W in all three schools. There were barely any changes in average percent of items receiving "Neutral" ratings between the two modes. However, in School RIC, there was a significant increase in the average percent of items receiving the highest ratings for the SOS_W.

Table 7 shows the number of students exhibiting response set (i.e., assigning a single rating to all of the items they rated) on the SOS_{PP} and SOS_W. The data suggest little difference in the average percent of students exhibiting response set between the SOS_{PP} and SOS_W.

Psychometric Characteristics

Table 8 presents the results for the reliability estimates of the data. The results show that, overall, four of the six reliability coefficients for the SOS_W were slightly higher than for the SOS_{PP}, while the number of responses was much smaller.

Table 9 summarizes the person-fit statistics of the two survey modes. Respondents answered about the same number of items under either administration mode. The distributions of person-fit statistics were similar between the two modes, with the exception of Section II items in School EPCM, which had a difference of 0.16 between the two standard deviation of mean squares (0.82 vs. 0.66). The proportion of misfit-persons was similar between the two survey modes with the exceptions of Section III items in School RIC and Section II items in School EPCM. The difference between the administration modes was 0.076 and 0.056, respectively, and the p-values for these differences were 0.014 and 0.009. Overall, SOS_W seemed to have a smaller standard deviation of mean squares, a smaller standard deviation of infit residual, and a smaller proportion of misfit persons.

Discussion

The purpose of this study was to determine if paper-pencil survey administration mode (SOS_{PP}) yielded results that were technically or practically different from a web survey administration mode (SOS_W). Issues of particular concern were population coverage, non-response error, measurement error, and psychometric qualities of the data. To study these issues we examined data collected at three institutions first through an SOS_{PP} mode and then through an SOS_W mode.

Response rates were noticeably higher for the SOS_{PP} modes than for the SOS_W mode when the sample was selected on class unit, not individual unit. Higher response rate for the SOS_{PP} in-class administration was expected, since it reaches a captive audience while the SOS_W mode allows students greater opportunity to self-select.

To determine population coverage, we compared selected demographic variables for the responding group with that of the student population for SOS_W and SOS_{PP} modes. No differences were found by race/ethnicity between the two groups. Differences were found, however, at one of the schools for sex, at three of the schools for enrollment status, and at two of the schools for age.

A significantly higher percentage of females from School 3-EPCM, the health sciences college, responded to the SOS_W than the SOS_{PP}. No reason for this change in response could be found.

There was an increase in the number of part-time students responding via the web at all three schools, but the increase in School 2-RIC (the public 4-year college, undergraduate enrollment of 2,300) was the most striking. This may be explained by the fact that sample selection for in-class administration was conducted by randomly or non-randomly selecting a number of classes, while sample selection for web administration was based on randomly selecting students who had a valid email address. Since part-time students were more likely to take fewer classes than full-time students, they were also less likely to be selected in the sample. Therefore, web administration may have resulted in more part-time students having been included in the sample and, thus, having had greater opportunity to participate.

Another less severe, yet noticeable difference, was the change in respondents by age. At School 1-NRC (the public 4-year college, undergraduate enrollment of 11,000), there was decrease in the number of students age 20-or-under (10.7%) and an increase in the number of students age 22-29 (9.3%) who responded via the Web. At School 2-RIC, there was an increase of 9.2% for the 30-and-over age group. This difference may also be due to sampling methods, since Web administration allows more part-time students, who tend to be older, to have been included in the sample.

Examinations of the data revealed similar response patterns, in most instances, and no differences in response set between the two modes. Extremely low ratings and neutral ratings remained the same for both modes at all three schools. However, at School 2-RIC, there was a significant increase in the average percent of items receiving extremely high ratings for the SOS_W. We will not speculate the reasons for this increase, since many other factors, such as the school itself, could have contributed to it.

The results of the reliability analyses revealed little difference between the two survey modes. The reliability coefficients for the SOS_W were slightly higher than the SOS_{PP}. Hypotheses tests for the proportion of misfit persons between the two survey modes revealed few statistically significant differences; however, the proportions were smaller in SOS_W in all three schools and much smaller in School 2-RIC on Section III and School 3-EPCM on Section II. Based on these

results, we conclude that the SOS_W seemed to have either an equal or, in some cases, better psychometric quality than the SOS_{PP}.

Conclusions

Review of the findings comparing the two survey modes (i.e., SOS_{PP} and SOS_W) indicated that they were relatively equivalent in most instances and that the SOS_W was, in some instances, more efficient for the three institutions included in the study. While response rates for the SOS_{PP} were higher than response rates for the SOS_W, comparison of demographic characteristics indicated that, on the whole, the responding groups for the SOS_W were quite similar to those of the student bodies they represented. In particular, the proportion of part-time students responding to the SOS_W was closer to the proportion of part-time students enrolled at the college than was the proportion of part-time students responding to the SOS_{PP}.

The web administration mode and paper-pencil administration mode seemed comparable in terms of the issues addressed in this study. The web survey mode seems to hold particular promise, however, for three primary reasons: 1. The cost (for labor and materials) of administering via the Web was much less than that for administering a paper-pencil survey in-class or through campus mail. 2. There was no disruption of class time, a problem that can cause much friction between professors and research staff and affect sampling. 3. Most, if not all students had an email address and access to the web, making adequate coverage and appropriate sampling more likely. Further study is needed, however, to determine if these findings are similar on other campuses and with other instruments.

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Table 1. Sample Size and Response Rate by Survey Mode

School	SOS_{PP} Response %	SOS_{PP} N	SOS_{W} Response %	SOS_{W} n
NRC[a]	54	1,035	33	612
RIC[b]	68	490	22	320
EPCM[c]	17	349	18	319

Note: NRC = Non-random sample, combination of in-class and campus mail administration.
RIC = Random sample, in-class administration.
EPCM = Entire population, campus mail administration.

Table 2. Gender Group by Survey Mode

School	Gender	SOS_{PP} Sample %	SOS_{PP} Campus %	SOS_{W} Sample %	SOS_{W} Campus %	Difference in Proportion %	z
NRC	Male	72.5	71.9	67.4	71.3	-4.1	-1.489
	Female	27.5	28.1	32.6	28.7	4.1	1.489
RIC	Male	78.9	82.5	76.4	83.6	-3.4	-0.989
	Female	21.1	17.5	23.6	16.4	3.4	0.989.
EPCM	Male	47.0	44.8	45.9	57.1	-13.1	-3.115**
	Female	53.0	55.2	54.1	42.9	13.1	3.115**

** = Statistically significant at $p<0.001$ level.

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Table 3. Age Group by Survey Mode

School	Age	SOS_{PP} Sample	SOS_{PP} Campus	SOS_{W} Sample	SOS_{W} Campus	Difference in Proportion	z
		%	%	%	%	%	
NRC	21 or Under	77.4	72.5	68.7	75.2	-10.7	-3.968***
	22-29	22.0	25.5	30.3	23.5	9.3	3.486**
	30 or Over	0.6	2.0	1.0	1.2	1.4	2.305[a]
RIC	21 or Under	42.5	36.8	37.9	40.8	-8.7	-2.073
	22-29	43.4	44.0	39.8	41.0	-1.0	-0.130
	30 or Over	14.1	19.3	22.3	18.2	9.2	2.750*
EPCM	21 or Under	8.1	5.5	10.3	2.2	6.3	2.693*
	22-29	71.5	71.0	72.1	74.8	-3.5	-0.913
	30 or Over	20.4	23.4	17.6	23.0	-2.8	-0.854

[a]statistical test not perform because of n < 20.

* = Statistically significant at $p<0.01$ level.

** = Statistically significant at $p<0.001$ level.

*** = Statistically significant at $p<0.0001$ level.

Table 4. Race/Ethnicity by Survey Mode

School	Race/Ethnicity	SOS_{PP}		SOS_{W}		Difference in Proportion	z
		Sample	Campus	Sample	Campus		
		%	%	%	%	%	
NRC	African American	9.2	9.3	5.9	8.5	-2.2	-1.376
	Caucasian	73.9	74.1	71.0	70.5	0.1	0.027
	Mexican American, Puerto Rican	3.4	3.2	3.7	2.9	0.3	0.267
	Asian American	11.9	12.3	13.4	16.6	-3.5	-1.671
	Other	1.6	1.1	6.0	1.4	4.1	
RIC	African American	17.4	17.9	16.0	21.5	-5.4	-1.652
	Caucasian	69.7	72.2	71.2	65.0	8.5	2.154
	Mexican American, Puerto Rican	2.8	2.0	4.3	2.8	0.4	0.269
	Asian American	6.3	4.9	4.9	6.3	-2.4	-1.230
	Other	3.8	3.1	3.6	4.4	-0.2	
EPCM	African American	7.8	7.8	6.5	8.8	-2.2	-1.007
	Caucasian	81.7	81.3	79.7	78.3	1.0	0.295
	Mexican American, Puerto Rican	1.2	1.7	2.3	1.8	1.1	0.957
	Asian American	7.8	7.9	10.1	9.1	1.3	0.551
	Other	1.5	1.2	1.4	2.0	-0.1	

Table 5. Enrollment Status by Survey Mode

School	Enrollment Status	SOS_{PP} Sample	SOS_{PP} Campus	SOS_{W} Sample	SOS_{W} Campus	Difference in Proportion	z
		%	%	%	%	%	
NRC	Full-time	98.4	92.4	92.1	92.0	-6.4	4.358***
	Part-time	1.6	7.6	7.9	8.0	6.4	4.358***
RIC	Full-time	81.0	63.0	60.8	60.8	-18.2	-4.608***
	Part-time	19.0	37.0	39.2	39.2	18.2	4.608***
EPCM	Full-time	98.3	84.9	96.5	92.5	-9.8	-6.042***
	Part-time	1.7	15.1	3.5	7.5	9.8	6.042***

*** = Statistically significant at $p<0.0001$ level.

Table 6. Average Percent of Extreme and Neutral Ratings by Mode

School	Category	Mean	SOS_{PP} Std.	n	Mean	SOS_W Std.	n	Difference in Means
NRC	L	3.86	7.06	1020	5.11	8.73	568	1.25**
	M	27.68	16.11	1020	25.87	16.27	568	-1.81*
	H	13.72	16.5	1020	14.66	17.16	568	0.94
RIC	L	2.28	4.19	486	3.45	6.48	304	1.17**
	M	28.26	18.59	486	28.11	18.11	304	-0.14
	H	11.31	15.09	486	16.98	20.65	304	5.67***
EPCM	L	2.24	5.03	348	2.87	8.57	301	0.63
	M	19.25	13.92	348	19.76	15.30	301	0.51
	H	24.87	25.43	348	22.20	23.92	301	-2.67

* = Statistically significant at $p<0.01$ level.
** = Statistically significant at $p<0.001$ level.
*** = Statistically significant at $p<0.0001$ level.

Table 7. Percent of Students Exhibiting Response Set By Mode

School	Section	SOS_{PP} %	SOS_W %	Difference
RIC	II	1.9	1.9	0.0
	III	0.8	1.1	0.3
NRC	II	4.2	5.0	0.8
	III	1.7	2.7	1.0
EPCM	II	5.7	4.2	-1.5
	III	1.6	2.0	0.4

Table 8. Reliability Coefficients for Section II and III Items by Mode

School	Section	Number of Items	SOS_{PP} Reliability for separating persons	SOS_{PP} Number of respondents	SOS_{W} Reliability for separating persons	SOS_{W} Number of respondents
NRC	II	21	0.75	968	0.78	525
	III	42	0.94	1,018	0.94	550
RIC	II	21	0.65	443	0.67	261
	III	42	0.93	485	0.94	293
EPCM	II	21	0.71	327	0.73	259
	III	42	0.95	342	0.94	290

Table 9. Summary of Person-fit Statistics by Mode

		Avg. Number of Items Answered		Standard Deviation of Unweighted Mean Square Residual		Standard Deviation of In-fit Statistic		Proportion of Misfitting Persons		Difference in Proportions
School	Sec.	SOS_{PP}	SOS_{W}	SOS_{PP}	SOS_{W}	SOS_{PP}	SOS_{W}	SOS_{PP}	SOS_{W}	$p_{SOS_W} - p_{SOS_{PP}}$
NRC	II	10.7	10.9	0.61	0.60	1.30	1.30	0.111	0.097	-0.014
	III	40.1	39.9	0.58	0.56	2.40	2.30	0.376	0.334	-0.042
RIC	II	7.8	7.5	0.72	0.67	1.30	1.30	0.115	0.085	-0.030
	III	38.8	38.0	0.65	0.64	2.50	2.40	0.415	0.339	-0.076
EPCM	II	8.5	8.5	0.82	0.66	1.40	1.20	0.138	0.082	-0.056*
	III	37.2	37.5	0.62	0.62	2.30	2.40	0.359	0.396	0.037

* = Statistically significant at $p<0.01$ level.

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